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ABSTRACT

A study investigated the distribution of attrition-related factors of 900 (351 male and 549 female) adult vocational students enrolled in selected postsecondary Louisiana vocational and technical institutions. Comparative, predictive, and ex-post facto designs were used. The outcome measure was students' perceived intentional persistence, which refers to the students' academic and career goals as evidenced by the holding power of the educational program, educational plans, or goals as reported by the students on a questionnaire. The study examined the effects of the following variables: demographic, precollege (high school performance, program requirements, and program prerequisite skill), institutional, environmental, and psychosocial. Results indicated that of the 900 participants, 633 (70 percent) were unintentional and 267 (30 percent) were intentional persisters. The 267 students who had the highest propensity for persistence had a mean of 3.48, whereas those with the least likelihood for retention had a mean intentional persistence of 2.84. Males were more likely to be retained than females. Single and separated students were more likely to withdraw than those who were married and widowed. Hence, gender and marital status, rather than minority and employment status, were more significant factors in students' intentional persistence in vocational institutions. (Contains 176 references.) (Author/KC)

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Perceived Vocational Students' Intentional Persistence

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Perceived Vocational Students' Intentional Persistence

Abstract

This study investigated the distribution of attrition-retention related factors of 900 (351 male and 541 female) volunteered vocational students enrolled in selected Louisiana's Vocational and Technical institutions unevenly distributed by geographical location: 230, Northwest; 200, Northeast; 270, Southwest; and 300, Southeast. Comparative, predictive, and ex-post facto designs were used. The outcome measure was perceived students' intentional persistence ($\bar{x}$ = 3.03, SD = 0.41).

Results indicated that of the 900 participants, 633 (70.3%) were unintentional and 267 (29.7%) were intentional persisters. The 267 students who had the highest propensity for persistence had a mean of 3.48 (SD = 0.37), while those with the least likelihood for retention had a mean intentional persistence of 2.84 (SD = 0.25). Male ($\bar{x}$ = 3.11, SD = 0.47) were more likely to be retained than female ($\bar{x}$ = 2.98, SD = 0.37) students. Single and separated students were more likely to withdraw than those who were married and widowed. Hence, gender and marital status, rather than minority and employment status, were more significant factors in students' intentional persistence in vocational institutions.

Perceived Vocational Students' Intentional Persistence

Introduction

It seems evident that vocational education is a necessity for all adult learners who seek it, however completion of vocational training by these students becomes vitally crucial to the fulfillment of their ultimate goal of employability. Believing and understanding the need of adult learners seeking job-specific training is the problem that lies in retaining adult learners long enough to teach them job-specific skills necessary for obtaining employment, maintaining employment, or advancing in the workplace.

Although it is necessary that adult workers return to school, it is also a necessity that the duration of time spent in vocational training programs be long enough for the acquisition of these job-specific training. Some adult learners however, dropout of these programs before acquiring sufficient skills for employment, advancement, or career mobility. Studies have indicated that minimum attention has been directed toward the problems of adult learners' experiences in vocational programs (Johnson, 1991; Shank, 1993). Thus, this is evidence that more research is needed in this area to assist educators of vocational training programs with providing learning environments conducive to meeting the special needs of vocational education students.

Vocational education programs at the postsecondary level tend to be shorter in length than at the two- and/or four-year institutions used most often in postsecondary retention and attrition studies. Differences in socio-demographics, socio-academic and educational orientations, program length, institutional commitments, students' sources of financial support and encouragement, institutional and instructional environmental stressors, and students' psycho-social adjustments within their parent

institutions collectively influence students' attrition-retention in vocational institutions (Bean & Metzner, 1985; Brown & Kayser, 1985; Johnson, 1991; Shank, 1993).

This study aimed at identifying and delineating significant factors that have the potential to compel vocational students to abort their educational pursuits, and to propose a predictive persistence (attrition and retention) model for adult learners in vocational education institutions.

These objectives were met through the application of Bean and Metzner's (1985) theoretical model that was adopted by Johnson's (1991) study as modified and tested by Shank's (1993) conceptual model. The model used as a basis for this study sought to solidify the latent dimensions derived from the literature and, to examine the relationships between pre-college variables (program prerequisite skills, high school performance, and program requirements), demographic variables (age, gender, race, marital status), psychosocial variables (students' goal commitment, interpersonal relationships, self-esteem, and the relationships with their instructors), environmental variables (finances/employment, outside agency support, outside encouragement, family responsibilities) and institutional variables (institutional concerns, commitment, and policy, course scheduling, academic ability and counseling) and adult students' intentional persistence (retention).

Background and Significance

Retention rates of students attending postsecondary education programs across the U. S. have remained relatively stable for about five decades (Nora & Cabrera, 1996; Terenzini, et al., 1996; Tinto, 1997). Since the turn of the century, studies have reported an overall retention rate from postsecondary institutions of approximately 50%, and retention rates in two-year institutions are considerably lower than in four-year institutions (Astin, 1975; Bean & Metzner, 1985; Cope, 1978; Iffert, 1958; Pantages &

Credon, 1978; Summerskill, 1962). According to the U. S. Department of Health, Education, and Welfare (HEW, 1977), in two-year programs, only 30% of the entering students complete their programs within the institution in which they first registered. A relatively large number of students who leave these two-year programs do, however, go on to successfully complete other forms of postsecondary education. In accounting for differing forms of students' voluntary withdrawal, transfer, stop-out, and/or drop-out behaviors, it has been projected that approximately 46.0% of all two-year college entrants will eventually obtain a college degree; and regardless of the program-type (two- or four-year), entering freshmen will eventually obtain a college degree. Overall, research studies indicate that it is not uncommon for students to voluntarily withdraw or dropout, stop-out (or re-enter the same program at a later time), or transfer to another (adopted) institution.

A number of empirical studies have proposed theoretical and conceptual models that explained students' attrition and retention in postsecondary institutions (Bean, 1980; Brown & Kayser, 1982; Johnson, 1991; Kayser, 1984; Lenning, Beal, & Sauer, 1980; Pascarella et al., 1983; Pascarella & Terenzini, 1977; Rootman, 1972; Shank, 1993; Spady, 1970, 1971; Tinto, 1975). Postsecondary institutional settings where these models were applied include two- and four-year community colleges and vocational education programs. The majority of attrition-retention related studies conducted to date have focused on traditional students in two- and four- year academic programs. Other studies have, however, adapted these earlier studies to examine student attrition and persistence among non-traditional students in higher education settings.

Perhaps the most well-known and tested model developed to date is Tinto's (1975) longitudinal model of students' attrition and persistence. The theoretical development of this model was based on Bean (1970) and Spady (1971) studies. The model adopted this general concept of social integration, the importance of academic performance and personal background factors, and the general notion of students'

and institutional commitments.

Several comprehensive studies have also been conducted to test the validity of Tinto's (1975) model (Fox, 1986; Garrison, 1985; Pascarella & Chapman, 1983; Pascarella, et al., 1983; Terenzini, 1977, 1980, 1983; Weidman & White, 1985). These studies investigated the validity and applicability of Tinto's model within different academic settings (residential and non-residential colleges, two- and four-year institutions), applied to different student populations (non-traditional and traditional), and tested with a range of multivariate and path analytic procedures for data analysis and interpretation.

Bean and Metzner (1985) proposed a conceptual model of non-traditional student attrition in higher education. Their model also built upon previous empirical studies; retained previously identified constructs and variables (social integration, academic variables, student background, and personal characteristics). The concept of socio-academic integration and the overall importance of college socialization on students' attrition, as well as personal background and outside environmental variables have been identified as some of the major factors affecting students' institutional attrition and retention.

Students' decisions to abort or continue their education are influenced by their perceptions about: (a) the usefulness (utility) of their college education in terms improved future employment opportunities and personal growth and development, (b) the degree to which students enjoy being students and are not bored with academic courses (satisfaction), © the amount of personal importance students ascribe to attaining a college education and graduating (goal commitment), and (d) the extent to which students experience high levels of stress from college and non-college activities (institutional stressors). That is, on the average, the best possible psychological conditions for persistence would be attained, if students' perception remained highly positive about factors such as utility, satisfaction, and goal commitment predicated upon their perceived low stressors in institutional and instructional (academic and program difficulty) environments, as well as adequate financial support and encouragement from their families and

outside agencies (Bean & Metzner, 1985; Brown & Kayser, 1985; Johnson, 1991; Shank, 1993). These non-academic or affective factors can even compensate for low levels of academic success.

There are few studies explicitly focusing on students' attrition-retention for non-traditional and vocational students in higher education. A model of educational adjustment was developed to explain non-traditional students' retention in vocational education programs (Brown & Kayser, 1982; Kayser, 1984). The non-traditional students in this model were classified as individuals who had difficulty successfully achieving any or all of the required objectives in their vocational training programs.

In Brown and Kaiser's (1982) model, three distinct sets of variables were thought to influence the levels of educational adjustment for vocational students: (1) background characteristics and students demographic variables, (2) satisfaction variables, and (3) satisfactoriness of performance variables. According to Brown and Kayser (1982), educational adjustment is the degree of correspondence (congruence) between students' perceived satisfaction with and actual satisfactoriness (performance) in their training programs. This general principle is similar to the concepts of person-environment fit and normative congruence.

Schwartz (1987), based on Tinto's (1975) model, developed another model for students' persistence processes in vocational technical institutions. Changes adopted by Pascarella, et al. (1983) for non-residential students were also included in this model. Schwartz's model, however, presented a further modification by defining the constructs for use with non-residential students in occupationally-specific training programs. In addition, the category of extra-institutional integration, as suggested by the literature, was added to reflect the external demands imposed on non-residential students (Weidman, 1985a, 1985b). Schwartz's model portrayed the following sets of latent variables: (a) background characteristics (pre-enrollment schooling/work, individual attributes, and family background status), (b) initial commitments (students' goal and institutional upon entry), © academic integration (student's

grades, technical and career development, and faculty-student interactions), social (extent and quality of students' relationship with peers, non-classroom interactions with faculty, interactions with the social system of the institution), extra-institutional (level of student adjustment between the institutional and instructional experiences and external demands); and (d) developed commitments (developed goal, institutional commitment and intent, influenced by attendance).

Johnson's (1991) study identified four sets of independent variables including Intrinsic and Extrinsic Motivation Factors with subsets of variables under each group. The first set or variables in Johnson's model contains "background characteristics" related to students' demographic, educational, social, and family history. The second set, "psycho-social integration," includes students' goal commitments; perceptions about the utility of vocational training programs for achieving future employment goals; affective measures of student alienation, self-esteem, and stress; and factors that focus on the nature of interpersonal relationships with peers and instructors. The interactions of theses variables produce psychological outcomes that are measured by the "student satisfaction" construct. The third set of variables describes "socio-academic integration." Academic integration variables include grades performance and GPA; academic, social, and physical capacities of the individual; and such conditions/influences within institutions as program policies, instructors, student support services, schedules, and training programs that affect students' institutional integration. The interactions of academic and institutional integration variables produce "student satisfaction" outcomes during participation in vocational training programs. Finally, environmentally based "mediating factors" are postulated to have a significant and direct effects on students' dropout and retention decisions. These variables include students' finances, hours of outside employment, family and peer encouragement, peer relationships, family responsibilities, and other community service agency involvement. These environmental variables influence the degree of psycho-social and socio-academic integrations, as well as

institutional experiences by students. The variables subsequently enhance or inhibit psychological and academic outcomes that ultimately influence students' decisions to dropout or persist.

Shank (1993) conducted a study to examine the four sets of intrinsic and extrinsic factors in order to identify a set of parsimonious latent dimensions that would be more conducive for predicting vocational students' institutional persistence. This smaller number of variables which constitutes a revision of Johnson's Conceptual Model represented several constructs comprising of the independent variables were used in testing the significance of the proposed model and determining their inclusion in a discriminant analysis procedure.

Theoretical and Conceptual Frameworks

Academic and social integrations are concepts that describe a student's ability to withstand institutional environmental stressors. A student who is both academically and socially integrated in an institution is considered to be co-integrated in that institution; otherwise, the student is considered a malintegrated student. Both concepts differentiate between potential intentional and unintentional persisters.

Six educational constructs consistently appear in the college attrition-retention models: students' background characteristics, co-integration (i.e., institutional socio-academic integration), prior-academic performance, psycho-social adjustments, environmental mediators, and persistence behaviors. These constructs are as defined in Tinto's (1975) 'Theoretical Model of College Students' Withdrawal' and Pascarella, et al.'s (1983) 'Suggested Reconceptualization of Tinto's (1975) Model,' and Bean and Metzner's 'Students' Intentional Persistence.' Together, these constructs describe the attrition-retention (persistence) behaviors of students in college.

Attrition and retention studies also acknowledge students' entry-level characteristics into the institution as significant factors in determining their potential for persistence. These studies differ by the

way they defined and collected data in their analyses.

Institutional environments are characterized by their types (residential or non-residential), predominant race of the student population, and program-type (two- or four-year). Within these institutions are the staff and faculty members whose influences significantly affect students' decisions to remain or leave the institution. The strongest construct influencing college student persistence in students' attrition-retention studies and models may be student co-integration within the institutional environment. Students' formal and informal institutional experiences involve faculty, staff, and peers (Tinto, 1975, 1988). Positive experiences create a sense of belonging in, affiliation with, or integration within the institutional environment by the student and often lead to retention (Nora & Cabrera, 1996). Negative experiences create a sense of being different and alienation from, or malintegration within the environment. These negative experiences and lack of incorporation often lead to withdrawal (Pascarella & Terenzini, 1983; Terenzini, et al., 1996; Tinto, 1975, 1997).

The model adopted for the present investigation paralleled those found in the literature. However, it is different by virtue of its component parts and measurable attributes. Earlier college attrition-retention models were based on the prevailing theoretical frameworks about two decades before. Recent reformulations of these earlier models incorporated some of the students' demographic profiles, students' affiliative needs, and parental involvement in students' academic achievement (Bean & Metzner, 1985; Hill, 1986; Johnson, 1991; Nora & Cabrera, 1996; Shank, 1993; Terenzini, et al., 1996; Tinto, 1997). Insofar as these models are concerned, there are still more to be learned from persistence studies about vocational students' withdrawal and persistence decisions.

The conceptual framework for the proposed model was influenced by these models. These models are generally discussed within the frameworks of two interrelated theories: the person-environmental fit theory and the stages of student departure theory.

The person-environmental fit theory evaluates the degree of fit between an individual student and the institution (Bean, 1970; Nora & Cabrera, 1996; Pascarella, 1985; Pascarella, et al., 1983). This theory posits that students come to postsecondary institutions with a variety of traits (e.g., gender, family background, cultural norms, financial and personal needs, pre-postsecondary characteristics, different academic aptitudes, and family obligations). These background (entry-level) characteristics lead to a student's initial commitment predicated upon his or her academic ability, study habits, and level of motivation. These initial commitments, together with entry-level characteristics and the student's academic aptitude collectively influence his or her decision to withdraw or remain within an institution provided that the student feels or perceives a sense of belonging (fit) or alienation (lack of fit) within the institution. The perceived feeling of alienation or belonging perpetuates the student's degree of co-integration (or malintegration thereof) predicated upon his or her ability to interact (formally and informally) with institutional personnel and other students. Students' commitments to the institution, the institution's aggregate commitment to the student, and familial influence on the students' decision-making ability are collectively affecting their persistence behavior.

The stages of student's departure theory postulates that institutional environmental stressors on the student are the cumulative results of a set of interrelated experiences sustained over an extended period of time (Ikegulu, 1996, 1997; Pascarella, et al., 1996; Tinto, 1975, 1988, 1997); and that the process of students' departures are longitudinal and depend on their levels of motivation and involvement within the institution. This theory presumes that as a student progresses through these stages -- initial stage with entry-level characteristics and initial goals and aspirations, to the median stage with refined study habits and personal and institutional goals and commitments, to the terminal stage with realized expectations -- the student's persistence behavior is affected through sustained endurance and improved levels of familial (and agency) support and family obligations as well as levels of institutional and

community activities and involvement as mediated by instructors' attitudes and characteristics.

The "Vocational Students' Intentional Persistence Model" (See Figure 1) illustrates a conceptual framework for understanding the relationships among the constructs (and their composites) and the dependent measure (students' intentional persistence or retention). This model identified four basic constructs: pre-college, institutional, psycho-social, and environmental variables. Together, these constructs explained the pragmatic formulation of the perceived students' intentional persistence in their respective vocational institutions. The attributes for sensing these constructs and their composites in Table 1 were operationalized as follows:

Students' Intentional Persistence refers to the students academic and career goals as evidenced in their individualized responses. It is measured in terms of Retention or the students' continued enrollment until graduation. It is the holding power of the educational program or sponsoring institution or agency, educational plans, educational goals, or career expectations as self-reported by the students on the survey questionnaire. It referred to the perceived amount of personal importance students associated with attaining a technical and/or vocational education, typically defined as the importance of graduating from college after the student had gained some experiences in college.

Demographic Variables were defined as students' age, gender, ethnicity, and marital status as indicated by an adult learner`s response on [xexexename of instrument]. Age was defined as the period that an adult learner is eligible (17 years old) to enroll in Louisiana technical colleges. Age was determined as the difference betwee 1998 and the student's reponse to the question "I was born in 19____."

Enrollment status distinguished part-time from full-time students. Employment refered to the number of hours students were employed outside their educational programs.

Pre-College Variables were defined as the items that related to the students' pre-postsecondary

environments. They were measured from the students' responses on the survey items; and included: High School Performance, referred to the students; academic performance in high school course; Program Requirements, referred to the requirements the students were expected to have attained to help them in their respective programs; and Program Prerequisite Skills, referred to the perquisite skills students are expected to have attained prior to enrolling in their respective programs.

Institutional Variables were defined as students' perceptions of their institutional concerns and policy formulations as they relate to students' intellectual growth and development. They included institutional commitment, course scheduling, academic ability, and academic counseling.

Environmental Variables were the students' perceptions of those mediating institutional and personal (home) environmental stressors that included family responsibilities, familial and outside encouragement, outside agency support, and financial and employment responsibilities. Family Responsibility included primary child care duties, household management, marital relationships, and other mediating factors. Outside Encouragement was defined as the perceive degree of support and encouragement students received from their family, peers, close friends, and associates. Outside Agency Support was considered as the amount or type of financial assistance and support received by students from community service agencies. Finances or financial responsibilities was defined as the availability of adequate funds to support the cost of tuition in the students' parent institution.

Psychosocial Variables are defined as goal commitment, interpersonal relationships, self-esteem, relationship with instructor.

Psycho-Social Variables referred to the perceived effects of the social and psychological, as well as the scope and quality of the students' interactions and experiences with the social system within their parent institutional environment (Bean & Metzner, 1985). This included the amount of personal importance students associated with obtaining vocational education services and the extent to which

students experience academic, social, and institutional stressors, feelings of alienation, and/or negative or positive influences on their self-esteem from their involvements in vocational institutional environments, faculty, and peers.

Research Design, Methodology, Analytical Procedures

Research Design and Methodology

This study utilized the comparative/predictive and ex-post facto designs to examine the influence of the exogenous latent variables on the dependent latent dimensions. This research design is appropriate for this investigation because the latent variables have already transpired and therefore, could not be manipulated (Kerlinger, 1986; Pedhazur & Schemlkin, 1991).

The participants consisted of students enrolled in Louisiana's Vocational and Technical institutions. These institutions were selected based on their geographical (Northwest, Northeast, Southwest, and Southeast) location on the Louisiana map. First, 16 representative institutions were chosen and then two institutions were randomly selected from each geographical region. These eight institutions were selected for inclusion in the study based on the racial composition of their student body. Second, because of the short-term duration of most of these vocational programs, students' selection for participation in this study was strictly on voluntary bases and, must have been a member of the institution for at least nine months. This selection criteria were adopted to minimize selection bias, as well as to realize the effects of the institutional climate on the students' transition from high school and adjustment to postsecondary institutional environment. Four classes in each of the eight representative institutions were selected based on class size. This yielded a convenient sample of 900 volunteered vocational students unevenly distributed by geographical location: 230 from Northwest, 200 from

Northeast, 270 from Southwest, and 300 from Southeast (Kerlinger, 1986; Pedhazur & Schmelkin, 1991).

Institutional permissions were sought. The instructors and institutional administrators were debriefed of the study's purpose. The harmful nature of the study, anonymity of students' rights to privacy, and confidentiality of research results were extended. Research assistants traveled to these institutions at designated dates and times and distributed the questionnaires to the students in the selected classes. Students were required to sign the consent form before any information was collected.

Instrumentation

Materials used for this study consisted of Students' Demographic Information and Consent form and Shank's (1993) "Survey of Adult Learners' Retention in Postsecondary Vocational Programs" (SALR-PVP). This instrument consisted of statements regarding vocational students' perceptions about the constructs in Figure 1 and Table 1. Participants were required to indicate their perceived level of agreement or disagreement on a six-point Likert scale from 1, Very Strongly Disagree; 2, Strongly Agree; 3, Disagree; 4, Agree; 5, Strongly Agree; and 6, Very Strongly Agree. The instrument was evaluated, field tested, and pilot tested by a panel of experts in order to establish content validity; and had internal consistency (Chronbach's alpha) estimates ranging from 0.60 to 0.93. A test-retest strategy was also used to test concurrent validity and reliability and yielded a range of validity estimates from 0.50 to 0.93. The Demographic Information Form solicited students' background information that included their year of birth, gender, ethnicity (race), and marital status. Results of the preliminary investigation (to evaluate whether the samples from these four geographical locations differed) revealed that the sub-samples adequately represented vocational students in the state of Louisiana by gender, age, ethnic background, and marital status.

Table 1

Latent Structures, Composites, and Indicators in the Survey of Adult Learners' Retention in Postsecondary Vocational Programs" (SALR-PVP) Instrument

Latent Structures Composites & Indicators	*Label*	*No. of Items*
Demographic Variables	*DEMOGRAPH*	*6*
Students' Age	*AGE*	
Students' Gender	*SEX*	
Students' Marital Status	*MSTAT*	
Students' Employment Status	*ESTAT*	
Students' Handicappment	*PHAND*	
Students' Ethnic background	*RACE*	
Pre-College Variables	*PRECOLL*	*14*
Program Requirement	*PROGREQ*	*4*
Minimal requirement for admission	*Z47*	
Difficult admission requirements	*Z48*	
Fair program attendance requirements	*Z49*	
Too many institutional rules	*Z50*	
High School Performance	*HSCHPERM*	*6*
Above average high school grades	*Z72*	
Average grades were consistently high	*Z73*	
Below average high school grades	*Z74*	
Inadequate study skills	*Z75*	
Inadequate knowledge-base for program	*Z76*	
Program difficulty	*Z77*	
Program Prerequisites	*PROGPREQ*	*4*
Regular class course attendance	*Z78*	
Prompt punctual class attendance	*Z79*	
Program difficulty-Poor Reading skill	*Z80*	
Program difficulty-Poor Math skill	*Z81*	

(Table 1 Continues)

Table 1 (Continued)

Latent Structures Composites & Indicators	*Label*	*No. of Items*
Psychosocial Variables	*PSYCH-SOC*	*15*
Interpersonal Relationships	*PERSREL*	*5*
Importance of being accepted	*Z6*	
Inability to make friends	*Z7*	
Lack-of-fit with other student	*Z8*	
I felt accepted by other students	*Z9*	
Positive peer influence toward success	*Z10*	
Self-Esteem	*SELF-ESTEEM*	*5*
I believe I have the ability to do well	*Z11*	
Everything always goes wrong for me	*Z12*	
Success contingent upon my ability	*Z13*	
Program completion contingent on ability	*Z14*	
I am a capable person	*Z15*	
Faculty-Student Relationship	*FACSTURE*	*5*
I am friendly with the instructors	*Z16*	
Instructors made me feel good personally	*Z17*	
I disliked the instructors personally	*Z18*	
Instructors didn't care about knowing me	*Z19*	
Instructors were just teachers to me	*Z20*	
Environmental Variables	*ENVIRON*	*20*
Financial Employment Responsibility	*FINANCE*	*5*
I worried about my finances	*Z26*	
I am secure about my financial situation	*Z27*	
I had to work to attend the program	*Z28*	
Program termination due to financial need	*Z29*	
Financial need not a factor in program	*Z30*	
Outside Agency Support	*AGENCY*	*5*
Outside agency support need in program	*Z32*	
Outside agency support fostered completion	*Z33*	
Enough outside agency financial support	*Z34*	
Outside agency financial support not needed	*Z35*	
Outside agency support received not needed	*Z36*	

(Table 1 Continues)

Table 1 (Continued)

Latent Structures Composites & Indicators	*Label*	*No. of Items*
Familial Outside Encouragement	*ENCOURAGE*	*5*
Helpful family/friend encouragement	*Z37*	
Family/friend support would have helped	*Z38*	
No one cared if I did well or not	*Z39*	
I did okay because of me and no one else	*Z40*	
Helpful encouragement from friends	*Z41*	
Family Responsibility	*FAMILY*	*5*
Family responsibility - school attendance	*Z42*	
Uninterfering family responsibility	*Z43*	
I have no family responsibility	*Z44*	
Child care responsibility and interference	*Z45*	
Health problem of family member	*Z46*	
Institutional Variables	*INSTITUTE*	*26*
Academic Ability	*ABILITY*	*5*
Stressful program course work	*Z21*	
I worried about my program performance	*Z22*	
Class attendance was enjoyable	*Z23*	
Instructors expected too much	*Z24*	
Training stressors cause life tension	*Z25*	
Institutional Commitment	*INSTCOMM*	*9*
Adult needs not accommodated in institution	*Z51*	
Adequate training facility	*Z52*	
Up-to-date facility enhanced training	*Z53*	
Old equipments not current with job skills	*Z54*	
Distance from home to school	*Z55*	
Parking facility caused frustration	*Z56*	
Choice of training program not offered	*Z57*	
Desired choice of training program offered	*Z58*	
Adequate training program time	*Z59*	
Course Scheduling	*CRS-SCHED*	*5*
Difficult personal course scheduling time	*Z60*	
Inadequate time for course lectures	*Z61*	
Helpful placement test in training program	*Z62*	
Placement test not offered during enrollment	*Z63*	
Opportunity to take interest ability test	*Z64*	

(Table 1 Continues)

Table 1 (Continued)

Latent Structures Composites & Indicators	*Label*	*No. of Items*
Academic Counseling	*COUNSELING*	*7*
Academic counseling not available	*Z65*	
Academic advisement provided by institution	*Z66*	
Helpful instructors' teaching methods	*Z67*	
Helpful instructors' timely feedback	*Z68*	
The instructors were poor teachers	*Z69*	
Charismatic caring instructors' attitudes	*Z70*	
I would've done better - different teacher	*Z71*	
Students' Intentional Persistence		
Persistence (Retention)	*PERSIST*	*5*
Program completion no matter what	*Z1*	
Unimportance of program completion	*Z2*	
Importance of program completion	*Z3*	
Not care if program is completed	*Z4*	
Program will not help toward job	*Z5*	

Results and Discussion

Analytical procedures for this study employed descriptive and inferential statistics. Demographic information were recoded and summarized to describe the sample. The survey items were used as indicators in the factor, multiple (and stepwise) regression, and covariance structures analyses (Kerlinger, 1986; Pedhazur, 1991; Tinsley & Tinsley, 1987). The inferential statistical procedures used to test the path model was structural equation modeling via the AMOS (3.6, PC). However, before these analytical procedures were performed, the entire instrument was subjected to normality tests.

Test for Normality

This is a test of the residual plots. These plots are compared with the normal curve to assess the

closeness the estimated parameters are to the expected population parameters. The purpose of item response theory (IRT), as with any test theory, is to provide a basis for making predictions or inferences about an individual's ability or trait measured by a survey (test) item (Birnbaum, 1968; Hambleton, 1979, 1983/93; Hambleton & Jones, 1993; Lord, 1952/53, 1980, 1984; Lord & Novick, 1968).

When the assumptions of IRT are met in a given data set the estimates obtained have the following desirable properties: (1) Estimated parameters are defined in relation to the pool of items from which the survey items were drawn but do not depend upon the particular sample of items selected for the survey, and therefore, respondents can be compared even though they might not have been sampled at the time. (2) Item descriptors or statistics do not depend upon the particular sample used to estimate them; and, because items and ability scores are defined on the same scale, items can be selected to provide optimal measurement at ability levels (traits) of interest. (3) The estimates are 'best linear unbiased estimators', asymptotically normal, and are sufficient statistics of the true population parameters. (4) Finally, IRT provides a statistical method that permits estimation of different standard errors of measurement for each respondent at different ability levels (Benson, 1998; Hambleton, 1979, 1983, 1993; Hambleton, Swaminathan, & Rogers, 1991; Kerlinger, 1986; Krathwohl, 1993) .

The standard errors or SE (i.e. standard error of the mean [SEM] or standard error of estimate) are non-negative measures of the amount of bias in estimated parameters or sampling errors (caused by random fluctuations). The smaller the SE, the better the estimated parameter; and thus, the less the bias. Bias is the difference between the parameter and the SE. In IRT or multiple item response theory (MIRT), an observed score is the sum of the true score and the error component from the estimation or sampling procedures. That is, $X(t_i) = T(t_i) - E(t_i)$; for all i = 1, 2, 3, ..., 900. The tests for normality were performed for each indicator and within the composites of these indicators and the respective constructs of these composites. The results of the IRT and MIRT indicated that about 90.0% of the survey items are

normally distributed. That is, their characteristic curves are approximately normally distributed. Students' age marginally inflated the global mean for the entire instrument (with little measurement error); and the true scores were approximately equal to the observed scores because the standard errors were very close to zero. This was especially true for the composites and their constructs. Thus, these indicators (and their latent dimensions), in the long run, measured the population parameters of interest (in this case, the population means were accurately estimated and measured from the sample means). Furthermore, by the 'Law of Large Numbers' and the 'Central Limit Theorem:' (a) the limiting distribution of the sample means approach the normal distribution with centrality parameters (μ & Σ^2; where $\Sigma = S/\sqrt{N}$), (b) the limiting probability of the sum of these sample means as the sample size approaches infinity equals the population mean, and © the limit that the expected value of the sample means being equal to the population mean was unity Almost Surely (a.s). That is, the long run (expected) value of these sample means (means of the Z's = $\bar{x}_i$) is the population mean with probability one; and since $\bar{x}_i \sim N(\mu, \Sigma^2)$, then $X_i \sim N(\mu, \sigma^2)$; $\forall i$. Two implications of these are that the $\bar{x}_i$'s are independently and identically distributed normal variates and, the means of some of these indicators (i.e., $\bar{x}_i$'s) could be combined to form the composites. The strength of the linear combinations of the indicators as well as their composites and latent traits were then tested using correlation analyses (Kerlinger, 1986; Pedhazur & Schmelkin, 1991).

Factor analysis was used to extract the educationally plausible constructs (latent traits) from the indicator variables that have the most parsimonious explanation of the latent dimensions; whereafter, a multiple regression analysis was performed on the composites of these constructs to validate the model. The model validation was a consequence of the path analysis. Reliability estimates were also computed as additional model validation process. These estimates (Chronbach's alpha) served as tests of validity for the survey instrument (Pascarella, et al., 1983; Pedhazur & Schmelkin, 1991). The entire model was then

subjected to path analytic validation.

The factorially derived scales and some of the recoded demographic variables were used as the independent variables in the MANOVA and discriminant analysis procedures (Bock, 1975; Jobson, 1992).

Descriptive Summary Measures

The attributes for sensing the constructs in Figure 1 are as shown in Table 1. The conceptual model in this study has six latent variables. The dependent outcome in the model was 'students' intentional persistence' or retention, an endogenous latent construct measured by five indicators.

The minimum scale was 1 (very strongly disagree) and the maximum was 6 (very strongly agree). Hence, the maximum and minimum scores for each of these items (Z_1 - Z_{30} and Z_{32} - Z_{85}) are 5,400 (6*900) and 900. Descriptive statistics were used to describe the characteristics of the sample. Intentional persistence status is a concept that differentiated between the intentional and unintentional persisters. Students' Goal Commitment (PERSIST, items one through five on the survey instrument) was used for this purpose.

In retrospect to the item response and multiple item response theories with regards to students' intentional persistence status, the mean (3.03) of these five items {mean(Z_1 - Z_5 or say $X_{PERSIST}$)} and the mean of this composite {mean($\bar{x}_{PERSIST}$)} were computed for the entire sample. Whence; if ($\bar{x}_{PERSIST} \leq \bar{x}_{PERSIST}$), then the student was considered an unintentional persister. If ($\bar{x}_{PERSIST} > \bar{x}_{PERSIST}$), then the student was an intentional persister. That is, students' intentional persistence status was a propensity for a student to persist in his or her parent institution based on how he or she perceived the institutional environmental stressors endemic within that institution and, the prevailing circumstances that could likely alter the student's completion of his or her academic pursuits. Hence, students who were classified as intentional persisters were those who exhibited the highest propensity for persistence. The unintentional

persisters were those who had the least or marginal propensity for retention. Table 2 is a summary of these descriptive measures.

Of the 900 participants in this study, 633 (70.3%) were unintentional and 267 (29.7%) were intentional persisters. The sample could also be characterized as homogeneous with age ranging from 17 to 62 (mean

Table 2

Frequency Distributions for the Demographic Variables

Variables	N	Percentage
Students' Intentional Persistence		
Intentional	267	29.7
Unintentional	633	70.3
Gender		
Male	351	39.0
Female	549	61.0
Marital Status		
Single	538	59.8
Married	278	30.9
Separated	70	7.8
Widowed	14	1.6
Ethnic Background/Minority Status		
White/Non-Minority	564	62.7
Non-White/Minority	336	37.3
African American	293	32.6
Asian American	10	1.1
Hispanic American	4	0.4
Native American	21	2.3
Others	8	0.9
Employment Status		
Full-Time	155	17.2
Part-Time	279	31.0

Unemployed		465	51.8

Table 2 (Continued)

Table 2 (Continues)

Variables		N		Percentage
Reasons for Enrollment				
Upgrade Present Skill		229		25.4
Acquire New Skill		524		58.2
Meet People		6		0.7
Increase Self-Confidence		37		4.1
Develop Hobby Skills		9		1.0
Develop Second Career	25		2.8	
Others		70		7.8
Disability Status (Permanent Handicappment)				
No Disability		768		85.3
Restricted/Impaired Mobility		35		3.9
Impaired Hearing		9		1.0
Impaired Vision	29		3.2	
Yes, Not Recorded		33		3.7
Other Impairment		26		2.9

29.485 years, SD = 9.497), had the least institutional affiliative need, and the highest propensity for attrition. The ethnic mix of these students were: White, Non-Hispanics or Caucasian Americans (546, 62.7%); Black, Non-Hispanics or African Americans (293, 32.6%); Hispanics or Latin Americans (4, 0.5%); Oriental or Asian Americans (21, 2.3%); Indians or Native American (10, 1.1%), and Others including foreign students (8, 0.9%). The gender distribution for these students were 351 (39.0%) males and 541 (61.0%) females.

Comparison of the Sample with State and National Norms

Given the high response rates from these vocational institutions and students, it is not

particularly surprising that the sample was a reasonable approximation of the population from which it was drawn. The overall sample summary measures are consistent with state and national norms for undergraduate students (Boylan, Bonham, & Bliss, 1994; Hashway, et al., 1994; Terenzini, et al., 1996). Findings from the National Center for Developmental Education research project on developmental education study by Boylan, Bonham, and Bliss (1993) revealed that: (a) 44 (38.0%) and 72 (62.0%) of the total (N = 116) institutions that participated in the study were two-year community or technical and four-year colleges and universities respectively and, (b) 2, 867 (64.7%) and 1, 564 (35.3%) of the effective sampled (N = 4,431) participants were White and Non-White students respectively. This study consisted entirely of vocational students whose minority status composition included 564 (62.7%) White/Non-minority and 336 (37.3%) Non-White/Minority students.

From Table 2, about 40.0% of the sample are not married, while 538 (59.8%) are married. Within the unmarried sub-sample, 278 (76.8%) are single, 70 (19.3%) are separated, and 14 (3.9%) are widowed. The majority of the sample are non-disabled 768 (85.3%). About 73 (8.1%) of this sample have physical, optical, or auditory disability and, 59 (6.6%) of the sample may have some form of learning disability that were not reported. Furthermore, 787 (87.4%) of the sample enrolled in their respective vocational institutions for self-improvement, career enhancement, and for cognitive development; 753 (83.7%) enrolled to either upgrade or acquire new skills necessary for their present or future employment; and only 43 (4.8%) enrolled for affiliation and/or self-esteem reasons. About 52.0% of the sample are unemployed. Of the 434 (48.2%) who were employed, 155 (17.2) and 279 (31.0%) had full- and part-time employment respectively.

The mean age for the respondents in this study was 29.49 years (SD = 9.50, SEM = 0.16), the range was 45 years (62 minus 17), and the median age was 32 years. Boylan, Bonham, & Bliss (1992), in their National Study of the Performance of Minority Students in Developmental Education, reported the

mean age for their subjects as 21.0 years and the range as 39 years (65 minus 16). So, it suffices to say that the sample, by definition, is a true representation of non-traditional students with respect to these demographic indicators. The overall mean age (and standard deviation) from Table 3 did not show any significant differences for minority status, gender,

and students' intentional persistence. There are, however, minor variations in the means (especially for

Table 3

Comparison of Mean (SD) of Age by Minority Status, Gender, Marital Status, Employment Status, and Intentional Persistence

Variables	Mean ($\bar{x}$)	SD
Students' Age	29.49	9.50
Minority Status		
White/Non-Minority	29.55	9.94
Non-White/Minority	29.38	8.71
Gender		
Male	29.33	10.35
Female	29.58	8.92
Marital Status		
Single	26.36	7.62
Married	33.99	9.72
Separated	33.14	9.72
Widowed	41.79	15.77
Employment Status		
Full-Time	28.91	8.48
Part-Time	27.20	8.52
Unemployed	31.05	10.07
Students' Intentional Persistence		
Intentional	29.57	8.88
Unintentional	29.29	10.83

gender and intentional persistence). This table also shows that marital status and employment status are affected by age.

Older students are more within the widowed (Mean = 41.79 years, SD = 15.77), married (Mean = 33.99, SD = 9.72), separated (Mean = 33.14, SD = 9.72), and unemployed (Mean = 31.05, SD = 10.07) students. Male and female (as well as minority and non-minority) students have no significant age differences within these sub-samples. These results are consistent with those of Table 2.

Table 4

Comparison of Mean (SD) of Students' Intentional Persistence by Employment Status, Gender, Marital Status, and Minority Status

Variables	Mean ($\bar{x}$)	SD
Students' Intentional Persistence	3.03	0.41
Intentional	3.48	0.37
Unintentional	2.84	0.25
Employment Status		
Full-Time	3.07	0.48
Part-Time	3.02	0.40
Unemployed	3.02	0.40
Gender		
Male	3.11	0.47
Female	2.98	0.37
Marital Status		
Single	3.03	0.41
Married	2.95	0.43
Separated	3.01	0.28
Widowed	2.97	0.40
Minority Status		
White/Non-Minority	3.03	0.41
Non-White/Minority	3.02	0.41

When age was stratified by marital status and employment status, single students tend to be

significantly different from those who are married, separated, and widowed with more variance in the age distribution within the widowed sub-sample. Married and separated students, although have different frequency distributions, have identical age distribution. With regards to employment status, the entire sample tend to be more clustered with part-time and unemployed students; full- and part-time students do not have significant age difference; and the majority of the unemployed students are either married, separated, or widowed. These variations in age distribution and other demographic indicators could be the consequences observed in the students' intentional persistence behaviors.

The variations observed in Tables 2 and 3 could be attributed to employment status, gender, and minority status among integrated and affiliated but not academically or socially integrated students in their respective parent institutions. It could also be reasoned that these variations were caused by the differential attrition-retention rates between the intentional and unintentional persisters. Table 4 is a comparative summary of the mean (and standard deviation) of the students' intentional persistence by employment status, gender, marital status, and minority status.

The overall mean of Students' Intentional Persistence is 3.028 (SD = 0.413). The 267 students with the highest propensity for persistence have mean of 3.48 (SD = 0.37); while those with the least likelihood for retention have mean persistence of 2.84 (SD = 0.25). With regards to gender, male ($\bar{x}$ = 3.11, SD = 0.47) are more likely to be retained than female ($\bar{x}$ = 2.98, SD = 0.37) students. Intentional persistence is not significant for minority and employment status. Single and separated students are more likely to persist than those who are married and widowed. Hence, it suffices to conclude that gender and marital status, rather than minority and employment status, are more significant factors in students' intentional persistence in these vocational institutions. The discrepancies observed in the mean age and students' intentional persistence can be explained when students' intentional persistence and their employment status are stratified by marital status, gender, and minority status as moderator variables.

Tables 5 and 6 are comparative summaries of these differences.

From Table 5, the distributions for students' intentional persistence indicate that; (1) The proportions of unintentional persisters is consistently higher than those of the intentional persisters across all subgroups. (2) Within the male sub-group, there are less male-intentional (38.5%) than male-unintentional (61.5%) persisters; but there are more female-unintentional (76.0%) than female-intentional

Table 5

Frequency Distribution of Students' Intentional Persistence Stratified by Marital Status, Gender, Minority Status, and Employment Status .

Moderator Variable	Intentional Persistence	
	Intentional	Unintentional
Marital Status		
Single	188 (34.94)	350 (65.06)
Married	59 (21.22)	219 (78.78)
Separated	17 (24.36)	53 (75.71)
Widowed	3 (21.43)	11 (78.57)
Gender		
Male	135 (38.46)	216 (61.54)
Female	132 (24.04)	417 (75.96)
Minority Status		
White/Non-Minority	173 (30.67)	391 (69.33)
Non-White/Minority	94 (27.98)	242 (72.02)
Employment Status		
Full-Time	54 (34.84)	101 (65.16)
Part-Time	78 (27.96)	201 (72.04)
Unemployed	135 (28.97)	331 (71.03)

Note.
Parenthesized values are percentages/proportions across levels of moderator variables.

(24.0%) persisters. (3) The unintentional persisters are more in the Non-White/Minority

(72.0%) than in the White/Non-Minority students. (4) More married (79.0%), separated (76.0%), and widowed (79.0%) are more likely to withdraw than the single (65.0%) students. Results for the employment status indicates: (1) More White/Non-minority than Non-White/minority students are either unemployed or are employed part-time. Only about 12% of the non-minority and 25% of the minority students are employed full-time. (2) More females (60.0%) than males (40.0%) are unemployed; and more males (25.0% & 35.0%) than females (12.0% & 28.0%) are either employed full-time or part-time

Table 6

Frequency Distribution of Employment Status Stratified by Marital Status, Gender, and Minority Status.

Moderator Variable	Employment Status Full-Time	Part-Time	Unemployed
Marital Status			
Single	105 (19.52)	189 (35.13)	244 (45.35)
Married	36 (12.95)	73 (26.26)	169 (60.79)
Separated	10 (14.28)	17 (24.29)	43 (61.43)
Widowed	9 (28.59)	0 (0.00)	10 (71.43)
Gender			
Male	89 (25.36)	189 (35.04)	139 (39.60)
Female	66 (12.02)	156 (28.42)	327 (59.56)
Minority Status			
White/Non-Minority	70 (12.41)	191 (38.87)	303 (53.72)
Non-White/Minority	85 (25.30)	88 (26.19)	163 (48.51)

Note.
Parenthesized values are percentages/proportions across levels of moderator variables.

respectively. (3) For marital status, at least 75.0% of married (78.8%), separated (75.7%), and widowed (78.6%) than single (65.1%) are likely to withdraw from school; the reverse is the case for retainable students with regards to marital status. (5) When students' employment status is considered, there are less proportions of likely persisters than drop-outs across the three levels of marital status. These high rates of

attrition to retention are the rationale for the stratification by employment status in Table 6 and outside agency support in Table 7.

From Table 6, married (61.0%), separated (61.0%), and widowed (71.0%) students are unemployed compared to the 45.0% of the unemployed single students. Only a marginal proportion (between 24.0% to 35.0%) of these students are employed part-time; and at most 20.0% of the single

Table 7

Frequency Distribution for Outside Agency Support by Type

	Received Service			
	Yes		No	
Agency/Source of Support	N	%	N	%
Division of Rehabilitation	53	5.9	847	94.1
Aid to Families with Dependent Children (AFDC)	106	11.8	794	88.2
Food Stamp	142	15.8	758	84.2
General Assistance Welfare (GAW)	19	2.1	881	97.9
Pell Grant	277	30.8	623	69.2
Students Loan	14	1.6	886	98.4
Private Industry Council (PIC)	7	0.8	893	99.2
Job Training Partnership (JTP)	236	25.9	667	74.1
Employment (JOBS/Tuition subsidy)	258	28.7	642	71.3
Alimony	6	0.7	894	99.3
Child Support	62	6.9	836	93.1
Single Parent Grant (SPG)	0	0.0	900	100.0
None	0	0.0	900	100.0
Others	0	0.0	900	100.0

(19.3%), separated (14.0%), and married (13.0%) students have full-time employment as opposed to the 28.6% full-time widowed students. These differences point to two dimensions: "Empty Nest Syndrome" and career enhancement and occupational stressors. This empty nest syndrome posits that family and career transitions in adults' lives motivated their quest for higher education; and conditional on the

satisfaction of their family obligations and responsibilities, career enhancement and occupational choices, their quest for higher education would be moderated by the collective and individualized effects of the adults' needs, age, gender, ethnic background, and marital status (Aslanin, 1989; Breese & O'Toole, 1994; Latack, 1981; Mohney & Anderson, 1988; Neugarten, 1968; Pace, 1979; Pace & Stern, 1958; Parellius, 1979; Rootman, 1972; Rose & Elton, 1966; Ross, 1988; Thompson, 1992; Timmons, 1997).

The empty nest syndrome breeds career, family, and occupational mediators in the adults' quest for balanced environmental homeostases. Empty nest is a situation whereby an adult individual (at least 35 years of age), who was originally married with children, finds himself (or herself) alone in a household that used to be occupied by his or her loved ones. The reasons for the empty nest could be death of a spouse, children got married and were living away from home, children got older and were living on-campus or in their own separate quarters, or the individual was separated or divorced. This ill-fated situation has the tendency to compel an individual to change his/her lifestyle, become more community oriented, rethink his/her basis for existence, and/or may be willing to sacrifice immediate pleasure for self-actualization or personal gratification (Aslanian & Brickell, 1980, 1988; Bachman & O'Malley, 1977; Boshier, 1971, 1977; Cross, 1978/79; Darkenwald &Merriam, 1982; Denniston & Imel, 1968; Flacks, 1963; Hand, 1974; Kanchic & Unruh, 1988; Robinson, 1990). This personal satisfaction may be in the form of career enhancement. The quest for career enhancement brings its own stressors. Promotion is sought to sustain a growing economy and occupational mobility, new skills are needed for the technology-driven workforce, or the individual may have the affiliative need to meet and interact with other people (Bridges, 1980; Brim & Ryff, 1980; Brown, 1976; Burgess, 1971; Cross, 1976, 1979, 1981; Davidson, 1968; Fisher, 1993; Fitzgeral & Crites, 1979; Henry & Basile, 1994; Knowles, 1970; Knowles et al., 1984; Lenning, Beal, & Sauer, 1980; Roueche & Roueche, 1993; Scalan & Darkenwald, 1984).

Correlation Analysis

Correlation analyses were performed to determine the strength of the relationships among the dependent variable (PERSIST), indicators and their composites, and the latent traits. Two sets of correlation analyses were performed, the Spearman-Brown's correlation and the Pearson's Product Moment correlation. The Spearman-Brown's coefficients assessed the intercorrelations among the categorically measured demographic indicators (gender, employment status, marital status, and ethnic background or minority status) and, between the continuous-scaled outcome measure (Students' Intentional Persistence). The Pearson's coefficients assessed the strength of the linear association between two or more continuous variables (Bock, 1975; Jobson, 1992; Krathwohl, 1993; Tinsley & Tinsley, 1987); and was used to ascertain the degree of association between the dependent measure and the factor scales (and their composites). Table 8 is a summary of the Spearman-Brown's correlations and Table 9 is a summary of the Pearson's correlation coefficients and the Chronbach's (Alpha or reliability) coefficients. The coefficient alphas assessed the degree of internal coherence (consistency) among the indicators and their composites and, between the composites and their constructs .

Table 8

Spearman-Brown's Intercorrelation Coefficients (r)

	PERSIST	SEX	ESTAT	MSTAT
SEX	-0.135 (***)			
ESTAT	-0.024	0.213 (***)		
MSTAT	-0.141 (***)	0.159 (***)	0.146 (***)	
RSTAT	-0.009	0.080 (*)	-0.097 (**)	-0.118 (***)

Note.
PERSIST = Students' Intentional Persistence.
SEX = Students' Gender.

ESTAT = Students' employment status.
MSTAT = Students' marital status.
RSTAT = Students' minority status.
Significant p-values are in parentheses.
*** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$.

Table 9

First-Order Correlation (r) of the Scales/Composites with Students' Intentional Persistence (PERSIST) and their Reliability Estimates (Alpha)

Scales/Composites	r with PERSIST	Alpha
Students' Age (AGE)	-0.136	
Pre-College Variables (PRECOLL)	0.157***	0.358
Program Requirement (PROGREQ)	0.057	-0.546
High School Performance (HSCHPERM)	0.162***	0.459
Program Prerequisites (PROGPREQ)	0.062	0.081
Psychosocial Variables (PSYCH-SOC)	0.204***	-0.094
Interpersonal Relationships (PERSREL)	0.112**	-0.123
Self-Esteem (SELF-ESTEEM)	0.071*	-0.240
Faculty-Student Relationship (FACSTUREL)	0.209***	-0.736
Environmental Variables (ENVIRON)	0.075*	0.373
Financial Responsibility (FINANCE)	0.094**	0.149
Outside Agency Support (AGENCY)	-0.001	0.329
Outside Encouragement (ENCOURAGE)	0.043	-0.088
Family Responsibility (FAMILY)	0.055	-0.152
Institutional Variables (INSTITUTE)	0.116**	0.447
Students' Academic Ability (ABILITY)	0.054	0.516
Institutional Commitment (INSTCOMM)	0.099**	0.200
Course Scheduling (CRS-SCHED)	0.082*	0.203
Academic Counseling (COUNSELING)	0.040	-0.429
Global/Overall Alpha (with AGE)		0.547
Global/Overall Alpha (without AGE)		0.655
Students' Intentional Persistence (PERSIST)	-	0.253

Note
*** p-value < 0.001
** p-value < 0.01
* p-value < 0.05

Table 8 indicates that the only likely predictors of students' intentional persistence are students' gender and their marital status. Students' employment status and minority status, although not significant with students' intentional persistence, are significant with students' gender and marital status. The magnitudes of most of the correlations associated with the composites formed in support of the conceptual model are not significant with students' intentional persistence (See Table 9). These coefficients are

consistent with the reliability estimates associated with these composites and their constructs. The composites formed by the pre-college -- program requirement ($r = 0.057$ and $p = 0.09$); high school performance ($r = 0.162$ and $p < 0.001$); and program prerequisites ($r = 0.062$ and $p = 0.064$) -- variables have marginally significant correlation coefficients with the dependent measure and explained at most 24.0% of the common variance of the indicators used in their respective assessments. The construct (pre-college variables) has a significant correlation with the dependent measure and explained only 12.79% of the common variance of its associated composites (and indicators).

All of the composites formed by the students' psycho-social variables are significant with students' intentional persistence at the 5% level of significance. However, the internal consistency estimates of these composites and the construct are negative. The composite faculty-student interaction ($r = 0.209$ and $p < 0.001$) has the largest alpha (-0.736) estimate and explained much of the common variance in the students' psycho-social construct.

The overall reliability (and percent of common variance) for the instrument used in this study is 0.5465 (29.87% with students' age) and 0.6551 (42.92% without students' age). The reduction in the global reliability estimates for the entire instrument when students' age was included in its computation is

an added rationale that students' age is not likely to affect students' intentional persistence behaviors in the sample. This is not surprising considering the population, the non-traditional students, from which the sample was drawn. This sample has a different attrition-retention patterns among all college students.

Persistence is a consequence of attrition and retention behaviors in a population of interest. Non-traditional students, by definition, are mostly commuters, at least 25 years of age, gainfully employed (responsible adults), and are either married, separated or divorced. Thus, the factors that contribute to their attrition-retention behaviors are not similar to those of the traditional students. Most non-traditional students are likely to persist in an institution where the risk stressors are minimal. That is, an institution that fosters students' well-being and academic progress in form of faculty-student relationships and adequate instructional and curricula emphases. These population of students also tend to persist more in an environment that is conducive to peer-group interactions and, need support services in the form of child-care, finance, tutoring, mentoring, and counseling. In addition to the first-order correlation between the scales (and their composites) of the indicators with students' intentional persistence and their reliability estimates in Table 8, the intercorrelations among these constructs and their composites are as depicted in Table 9.

Table 7 portrayed the brake-down of the entire sample by type of outside agency support received. This table indicated that the majority of the sample did not receive outside agency support in the form of students loan, Pell grand, and/or tuition subsidies. From Table 9, "Outside Agency Support" (AGENCY) has virtually no relationship with the outcome variable ($r = -0.001$, $p > 0.20$); but it has a higher internal consistency estimate (Alpha = 0.329) in comparison with the rest of the composites. That is, although outside agency support is not likely to be significant in predicting students' intentional persistence, it very likely to be a reliable factor in students overall attrition-retention in vocational institutions.

For instance, when the entire sample was stratified by marital status and employment status: (1) The majority of the students in the sample were not married (single, separated divorced, or widowed); the unmarried students tended to be significantly different from those who were married; and the married and separated students have identical age distribution. (2) With regards to employment status, the entire sample tended to be more clustered with part-time and unemployed students; full- and part-time students did not have significant age difference; and the majority of the unemployed students are either married, separated, or widowed. These differences in age distribution and other demographic indicators were the consequences due to the outside agency financial support in the observed students' intentional persistence behaviors.

Consistent with the results obtained from Tables 8 and 9, Table 10 amplified the suspicions that the items and the summated scales in the conceptual model have different scaling -- orthogonal and bi-polar -- and, that the combined effects of these constructs and their composites need to be re-examined using the exploratory factor analyses procedures. A summated scale is an attitude scale or index made up of several survey or questionnaire items measuring the same trait. The responses (in a summated scale) are given a numeral in such a way that they can be added (summed).

There are high multicollinearity among these latent traits; and all of the composites of each construct are highly correlated (with correlation coefficients of at least 0.5, $p < 0.0001$) with their respective latent variables. Most of these composites, are however, not significantly related to other constructs. Thus, the conceptual model, although theoretically justified, is not empirically feasible for this sample. A pragmatic significance of this deviation is the consequence of the nature and type of items in the survey instrument (Barham & Ikegulu, 2997; Benson, 1998). The demographic and the non-demographic indicators have different attitude measures; and the respondents' responses to these indicators are the consequences observed in the low correlation coefficients. This is particularly the case

for the scales and composites associated with the psycho-social, institutional, and environmental latent variables.

These findings suggest rescaling the composites. They also indicate the presence of scale-variance of the latent traits in the proposed model. Hence, the original scaling (based on theoretical

Table 10

Factor Loadings, Scores, and Communality Estimates: Seven-Factor Model

Scales/Indicators	FL	FR	FS	h^2_0	Alpha
Students' Prior Academic Performance (HSCHPERM) ($\bar{x}$ = 3.13, SD = 0.55, and SEM = 0.018)					0.488
Z77	-0.700	-0.661	-0.191	0.534	
Z76	-0.690	-0.644	-0.165	0.540	
Z80	-0.651	-0.635	-0.195	0.389	
Z74	-0.617	-0.603	-0.184	0.394	
Z79	0.577	0.556	0.201	0.480	
Z78	0.572	0.548	0.197	0.483	
Z75	0.529	0.522	0.168	0.339	
Students' Agency Financial Support (AGENCY) ($\bar{x}$ = 3.86, SD = 0.92, and SEM = 0.031)					0.396
Z33	-0.832	-0.835	-0.325	0.618	
Z32	-0.848	-0.825	-0.308	0.619	
Z34	0.785	0.806	0.330	0.541	
Z35	-0.594	-0.583	-0.222	0.349	
Program Difficulty and Stressor (ABILITY) ($\bar{x}$ = 3.13, SD = 0.90, and SEM = 0.030)					0.776
Z21	0.777	0.774	0.268	0.527	
Z25	0.702	0.686	0.212	0.566	
Z22	0.668	0.658	0.225	0.395	
Z61	0.610	0.588	0.184	0.416	
Z24	-0.594	-0.583	-0.222	0.445	
Students; Financial Stressor (FINANCE) ($\bar{x}$ = 3.28, SD = 0.61, and SEM = 0.020)					0.138

Z26	0.703	0.694	0.259	0.540
Z27	-0.651	-0.646	-0.249	0.491
Z29	0.635	0.612	0.222	0.435
Z42	0.595	0.574	0.206	0.387

(Table 10 Continues)

Table 10 (Continued)

Scales/Indicators	FL	FR	FS	h^2_{ii}	Alpha
Institutional Commitment (INSTCOMM) ($\bar{x}$ = 3.04, SD = 0.65, and SEM = 0.022)					0.617
Z53	-0.763	-0.713	-0.246	0.475	
Z51	-0.727	-0.695	-0.224	0.510	
Z54	-0.704	-0.674	-0.215	0.487	
Z50	0.623	0.603	0.188	0.463	
Z52	-0.533	-0.527	-0.151	0.336	
Z60	0.583	0.503	0.113	0.438	
Z65	0.581	0.503	0.113	0.432	
Student-Faculty Interaction/Institutional Affiliation (FACSTUREL) ($\bar{x}$ = 3.00, SD = 0.56, and SEM = 0.019)					0.503
Z19	-0.659	-0.612	-0.187	0.610	
Z20	-0.646	-0.603	-0.197	0.505	
Z18	-0.632	-0.593	-0.181	0.567	
Z10	-0.553	-0.541	-0.202	0.340	
Z71	0.561	0.535	0.178	0.594	
Z69	0.541	0.521	0.174	0.611	
Z6	0.515	0.519	0.218	0.205	
Z41	0.515	0.504	0.175	0.395	
Students' Intentional Persistence (PERSIST) ($\bar{x}$ = 1.96, SD = 0.71, and SEM = 0.024)					0.762
Z4	0.692	0.675	0.235	0.453	
Z2	0.664	0.644	0.222	0.421	
Z5	0.642	0.617	0.207	0.377	
Z8	0.631	0.598	0.191	0.346	
Z14	0.552	0.536	0.192	0.363	
Z12	0.551	0.508	0.164	0.363	
Z7	-0.544	-0.501	-0.148	0.383	

Overall	($\bar{x}$ = 3.01, SD = 0.37, and SEM = 0.012)	0.767

Note.
SEM is the standard error of the mean; FL = Factor Loading; FR = Factor rotation;
FS = Factor Score; and $h^2_{\ j}$ is the communality estimate.

conceptualization) is not empirically supported. The variations observed in Table 9 could be attributed to students' employment status, gender, marital status, and the composites (and the items) used in assessing the environmental variables.

The composites and items in the "psycho-social and environmental variables" are the nuclei of the students' interpersonal relations, institutional affiliation, familial support and encouragement, and outside agency financial support. Institutional commitment to the students, the students' commitment to the institution, and the aggregate financial and moral support and encouragement students received from their family and external sources could determine their academic success or failure in their chosen fields of endeavor. Tables 10 and 11 are summaries the means (SD), Chronbach's alpha-reliability coefficients, and the number of indicators per composite for the factorially derived scales.

A factor analysis procedure with list-wise deletion was performed. Although the 81 items in the instrument were measured on a six-point Likert scale, the initial principal component factor analysis of these items was ill-conditioned (i.e., the determinant of the correlation matrix was zero). The mean-substitution option was then employed on the entire 86 indicators (demographic and non-demographic). This also proved abortive because some of these items were classificatory variables and violate the continuity assumption for factor analysis. With the maximum likelihood option, the demographic indicators did not meet the 0.3 cut-off for inclusion in the factor model. These indicators were excluded from subsequent factor analysis procedures. The remaining 81 items were factor analyzed (with a cut-off of 0.5). This procedure (with 67 indicators) yielded 22 factors with eigenvalues ranging from 1.012 to

13.22 and explained about 62.5% of the unique variance in the correlation matrix. The indicators that did not meet the 0.5 cut-off were excluded from further analyses. The 67 indicators (22-factor model) were subjected to a maximum likelihood factor analysis with a cut-off of 0.5. This procedure yielded a seven-factor model. The Chi-Square (df = 113, p = 0.182) value was 126.473. The VARIMAX option

Table 11

Factor Loadings, Scores, and Communality Estimates: Five-Factor Model

Scales/Indicators	FL	FR	FS	h^2_i	Alpha
Institutional Commitment					
($\bar{x}$ = 4.11, SD = 0.69, and SEM = 0.023)					0.179
Z79	0.848	0.819	0.429	0.435	
Z78	0.840	0.812	0.426	0.426	
Z59	0.633	0.634	0.303	0.278	
Program Difficulty and Stressor					
($\bar{x}$ = 3.44, SD = 0.97, and SEM = 0.032)					0.760
Z21	0.822	0.806	0.332	0.493	
Z22	0.733	0.728	0.420	0.361	
Z25	0.707	0.727	0.263	0.507	
Z61	0.644	0.653	0.252	0.316	
Students' Financial Stressor					
($\bar{x}$ = 3.32, SD = 0.96, and SEM = 0.032)					0.600
Z29	0.719	0.728	0.420	0.309	
Z26	0.708	0.695	0.423	0.241	
Z42	0.604	0.617	0.345	0.236	
Student-Faculty Interaction/Institutional Affiliation					
($\bar{x}$ = 3.62, SD = 0.68, and SEM = 0.023)					0.274
Z69	0.757	0.744	0.313	0.633	
Z10	0.714	0.685	0.302	0.604	
Z6	0.640	0.619	0.291	0.192	
Z42	0.626	0.618	0.276	0.202	
Students' Intentional Persistence					
($\bar{x}$ = 1.95, SD = 0.73, and SEM = 0.024)					0.742
Z4	0.729	0.718	0.265	0.432	
Z2	0.705	0.696	0.256	0.395	
Z5	0.676	0.673	0.243	0.327	
Z14	0.645	0.625	0.247	0.301	
Z12	0.594	0.687	0.210	0.357	
Z8	0.582	0.652	0.181	0.445	
Overall ($\bar{x}$ = 3.11, SD = 0.42, and SEM = 0.014)					0.628

Note.
SEM is the standard error of the mean.
FL = Factor Loading.
FR = Factor rotation.
FS = Factor Score; and h^2_{ij} is the communality estimate.

converged in nine iterations and consisted of 42 indicators with eigenvalues ranging from 1.02 to 4.68,factor loadings from 0.60 to 0.85, and 57.1% of the unique variance of the factors.

These 42 indicators were then subjected to another maximum likelihood factor analysis. Items with negative loadings were excluded from this analysis. The scree plot yielded a solution of five factors with factor loadings ranging from 0.60 to 0.81 and accounted for 52.3% of the total variance. A cut-off point of 0.599 was used in this procedure. The Chi-Square (df = 148, p = 0.0116) value was 189.775. The VARIMAX option converged in after seven iterations. These composites were deemed necessary to improve the maximum likelihood estimates of the communality estimates, as well as the factor scores and the structure matrices. These scales and their associated composites indicated that both the full and reduced regression models adequately predicted the effects of these measures on vocational students'

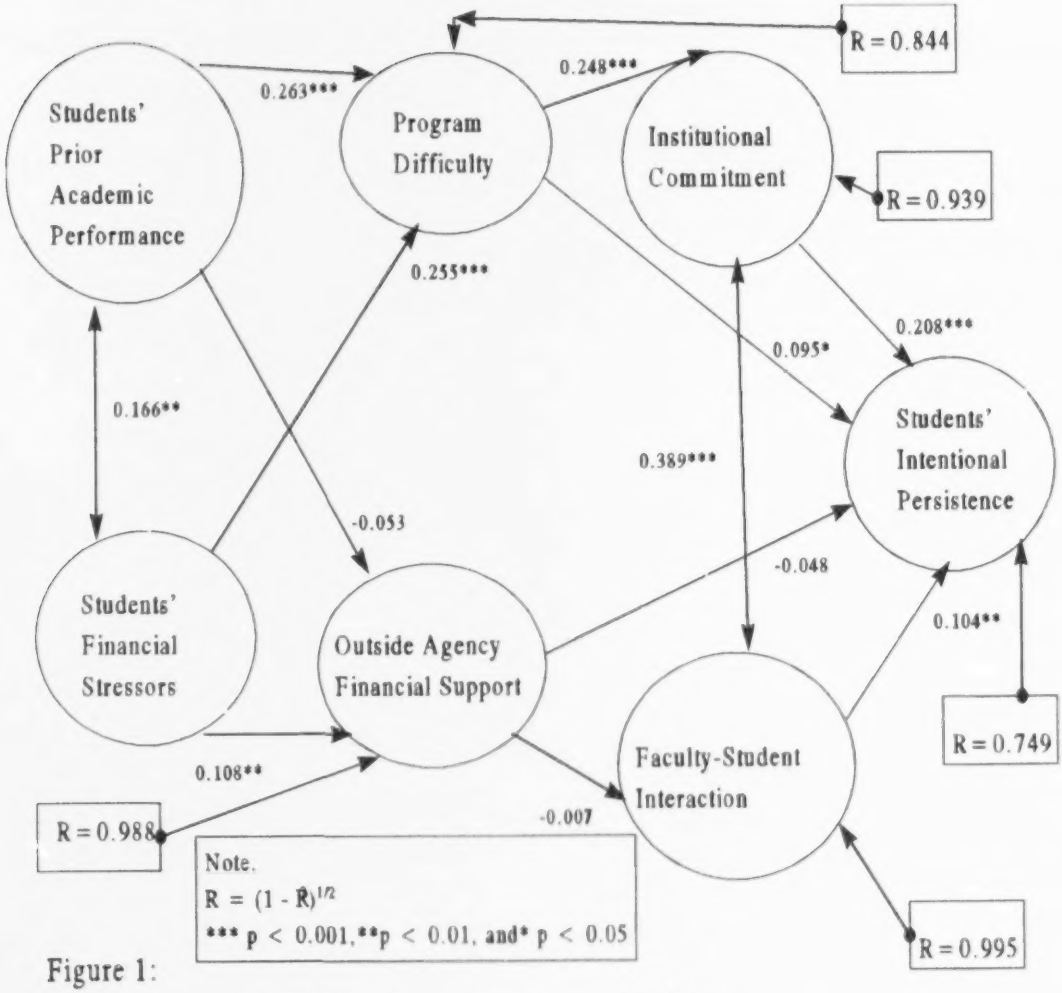

Figure 1:
Vocational Students' Intentional Persistence Model

intentional persistence. Both models explained 21.6% and 38.2% of the total variation in persistence behaviors respectively. The sample correlation coefficients for these scales are statistically significant at the five percent level of significance.

Without loss of generality, the five-factor model (MSE = 0.507, $F[4, 895] = 13.66$, and $p < 0.001$) is less parsimonious, is a subset of the seven-factor model, has a global internal consistency estimate of 0.6279 (explained about 39.43% of common variance), and accounted for less than 40% of the total variance in students' intentional persistence (See Table 11). The seven-factor model (See Table 10), on the other hand, has an overall (global) internal consistency estimate of 0.7671 (i.e., accounted for about 58.84% of the common variance), explained about 50.1% of the total variance in predicting students intentional persistence, and has more prediction and fitness (MSE = 0.432, $F[6, 893] = 23.90$, and $p < 0.001$) accuracy than the five-factor model. The seven-factor model (See Figure 1) was used in the path analysis.

Path Analyses

Figure 1 is the consequence of the factor and path analyses. Students' background characteristics have significant effects on students intentional persistence mediated by the collective effects of students' ability, institutional commitment, students' sources of financial support, and students' involvement in institutional faculty. "Pre-college variables" were defined as the items that relate to the students' pre-postsecondary environments. They were measured from the students' responses on the survey items and included (a) "high school performance" referred to the students' academic performance in high school, (b) "programrequirements" referred to the requirements the students were expected to have attained to help them in their respective programs, and © "program prerequisite skills" which referred to the prerequisite skills students were expected to have attained prior to enrolling in their respective programs.

Summary and Conclusion

In behavioral science studies, cause-effect relationships reflect the ambivalence of a causal inference that links causality to perceived effectuation by way of hypothesized concepts and constructs. These constructs are then evaluated, in light of the concepts, using the axioms of probability and design methodology (Benson, 1998; Birbaum, 1957; Jobson, 1992; Lord & Novick, 1968; Pedhazur & Schmelik, 1991; Scriven, 1968, 1971, 1975) . This study vacillated between the forces linking causes to effects; and the consequences of this linkage were delineated.

My expectation for undertaking this investigation was that information gained from it would be used to educate the masses about the nature and needs of non-traditional and vocational students. The essential purposes of this study had been three-fold: (1) To use a multidimensional instrument that assessed the major dimensions of intent to persist in vocational education programs. (2) To validate and solidify the constructs in the proposed model and link these constructs together in a manner that depicted the overall vocational students' intentional persistence. (3) To lay the foundation for a large-scale study of persistence analysis with a focus on vocational and/or developmental students in the state of Louisiana. These aims were met with much skepticism. However, the results were consistent with previous investigations (e.g., Bayer, 1968; Bean, 1980/81, 1985; Bean & Bradley, 1986; Bean & Creswell, 1980; Bean & Metzner, 1985; Blanchfield, 1971; Brown & Kayser, 1982/85; Garrison, 1985; Kayser, 1984; Nora & Cabrera, 1996; Pascarella, 1982, 1985/88; Pascarela, et al., 1983; Okun, et al., 1990; Terenzini, et al., 1996; Terry, 1973; Thompson, 1991; Volkwein, King, & Terenzini, 1986; Wilms, 1975).

Predictive/comparative and ex-post facto designs were used in this study to investigate the influence of certain demographic factors (age, gender, marital status, and ethnic background), institutional variables, environmental stressors, psycho-social factors, and pre-college variables on

vocational students' intentional persistence behaviors (assessed by their goal commitments) in the state of Louisiana. Specifically, this study estimated the parameters and tested the goodness-of-fit of the conceptual Vocational Students' Intentional Persistence model (Pascarella, et al., 1983, 1996).

For every 20 students admitted into an institution in the United States, eight will graduate from that institution four years later. Two more will eventually graduate at some point after four years. Of the ten students who dropped out, eight will re-enroll at a different institution and, of these eight re-enrollees, only four will graduate. Of the 12 students who originally dropped out, six did so during the first year. Four more dropped out during the second year. 12 of the 20 students who were originally admitted into the institution never obtained a college degree (National Center for Educational Statistics, 1982, 1993/98; Statistical Abstract of the U.S., 1993, 1998). This means that of an estimated 12.2 million undergraduates enrolled in the U.S. colleges and universities in 1995, roughly 3.7 (30.3%) million would drop out of higher education completely, 4.9 (40.0%) million are expected to graduate, and about 3.67 (30.1%) million would stop out. These high drop-out and stop-out students filtered into the mainstream of the U. S. population constitute the population of illiterate citizens (Houston, 1984; Iffert, 1957; Pantages & Credon, 1978).

Intentional persistence status is a concept that differentiated between the intentional and unintentional persisters. This study indicated that 267 (30.0%) of the 900 students were intentional and 633 (70.0%) were unintentional persisters. That is, about 70.0% of the sample were at risk of either dropping out or stopping out from college. The net attrition-retention rates were consistent with other studies (Aitken, 1982; Allen, 1985/87, 1991/92; Allen & Nelson, 1987; Bean & Metzner, 1985; Henley, 1988; Hashway, et al., 1992, 1994; Hills, 1964; Iffert, 1957; Nora & Cabrera, 1996; Okun, et al., 1990; Pascarella, 1982, 1985/88; Pascarella & Chapman, 1983; Pascarella, et al., 1983; Roueche & Armes, 1992; Roueche, Baker, & Roueche, 1984, 1987; Terenzini, et al., 1996; Tinto, 1987, 1988).

The impacts of students' demography have been studied and conclusions reached as to their relative merits and demerits in shaping students' persistence intentions in higher education. Individually, these demographic factors may be significant predictors of students' co-integrability and affiliation depending on the geographical location, population under consideration, and the operational definitions of persistence related concepts and constructs (Iffert, 1957, Pantages & Credon, 1978; Tinto, 1997). The collective impacts of these demographic factors worth investigating in any persistence study. These factors were included in the current investigation.

The sample investigated in this study consisted of 351 (39.0%) male and 541 (61.0%) female undergraduate students from 16 vocational institutions in Louisiana. These vocational undergraduate students could be characterized as homogeneous with age ranging from 17 to 62 (mean 29.485 years, SD = 9.497), had the least institutional affiliative need, the highest propensity for attrition, and are typical non-traditional developmental students (Boylan, 1985a, 1985b; Boylan & Bonham, 1994; Boylan, Bonham, & Bliss, 1994; Boylan & White, 1987, 1988; Hill, 1987; Ikegulu, 1996, 1997; Levinson & Darrow, 1978; Loevinger, 1976; London, 1970; Lowenthal, et al., 1975; Ross, 1988; Tinto & Cullen, 1973). The ethnic mix of these students were: White, Non-Hispanics or Caucasian Americans (546, 62.7%); Black, Non-Hispanics or African Americans (293, 32.6%); Hispanics or Latin Americans (4, 0.5%); Oriental or Asian Americans (21, 2.3%); Indians or Native American (10, 1.1%), and Others including foreign students (8, 0.9%). The gender distribution for these students were 702 (46.8%) males and 798 (53.2%) females.

The "Vocational Students' Intentional Persistence Model" has two exogenous (students' prior academic performance and students' financial stressors) and five endogenous (program difficulty, students' outside agency financial support, institutional commitment, faculty-student interaction, and students' intentional persistence) latent dimensions. This model posited that: (1) Students' financial

stressors and their prior academic performance were significantly related. (2) There were direct effects from students' prior academic performance to program difficulty and an insignificant direct path to students' outside agency financial support; and that there was an insignificant indirect path from students' prior academic performance to students' outside agency support and encouragement mediated by their financial stressors. (3) There were significant direct effects from students' financial stressors to students' outside agency support and program difficulty and, an insignificant indirect path from students' financial stressors to program difficulty mediated by their prior academic performance. (4) A direct path from program difficulty to institutional commitment and, a direct and an indirect paths from program difficulty to students' intentional persistence through institutional commitment. (5) An insignificant direct path from students' outside agency financial support to faculty-student interaction and, a direct and an indirect paths from students' outside agency financial support to students' intentional persistence through faculty-student interaction. (6) Institutional commitment and faculty-student interaction are interrelated and both have significant direct paths to students' intentional persistence.

From the path diagram (See Figure 1) and Tables 10 and 11, two significant paths were obvious: (1) the relevant academic and instrumental path from students' perceived prior academic ability (or high school performance) through program difficulty and institutional commitment to students' intentional persistence; and (2) the supportive and relational path from students' perceived financial stressors (or psych-social and financial adjustment), through students' supportive services (or sources of financial support and encouragement) and faculty-student interaction to students' intentional persistence. Together, both paths accounted for most of the variance in vocational students' perceived intentional persistence. Table 12 is a decomposition of the causal effects in the path model. The internal consistency estimates were consistent with the results of Figure 1 and Table 12.

Table 12

Decomposition of Causal Effects in the Path Model

Effects	Causal Effects		
	Direct	Indirect	Total
On Program Difficulty:			
Of Students' Prior Academic Performance	0.263	0.000	0.263
Of Students' Financial Stressors	0.255	0.044	0.299
On Students' Agency Support:			
Of Students' Financial Stressors	0.108	0.000	0.108
Of Students' Prior Academic Performance	-0.053	0.018	-0.035
On Institutional Commitment:			
Of Program Difficulty	0.248	0.000	0.248
On Student-Faculty Interaction:			
Of Students' Agency Support	-0.007	0.000	-0.007
On Students' Intentional Persistence:			
Of Institutional Commitment	0.208	0.040	0.248
Of Faculty-Student Interaction	0.104	0.081	0.185
Of Program Difficulty	0.095	0.052	0.147
Of Students' Agency Support	-0.048	-0.001	-0.049

Most studies found that academically related factors were significant in predicting students' persistence (Hill, 1987, Keith, et al., 1986; Ikegulu, 1996; Nettles, Thoney, Gosman, & Dandridge, 1987; Nora & Cabrera, 1996; Pascarella, 1985/88; Terenzini, et al., 1996). These studies also demonstrated that high school GPA, college GPA, other pre-college variables, and achievements test scores are significant factors in students' attrition and retention. The same conclusions were reached in the present investigation. Pre-college variables (prior high school performance, program prerequisite skill, and

program requirements) were inversely related ($\varphi = -0.053$); and had insignificant (direct) link to outside agency financial support; but had significant direct effects on program difficulty ($\Upsilon = 0.263$, $p < 0.001$) and students' financial stressors ($\Upsilon = 0.166$, $p < 0.01$). This means that students who were academically prepared in high school could have scored higher on their achievement tests and, the combination of strong high school curricula and better scores on ACT would foster the transition in vocational programs and ease the adjustment from high school to postsecondary institutional environments. These in turn, would ease the tension in securing financial aids, lessen the burden of program difficulty, and promote institutional affiliation and co-integrability through strong peer-group and faculty-student interactions. The consequences of these would result in reduced attrition and increased retention rates (Astin, 1972, 1993; Bean, 1980; Bean & Metzner, 1985; Johnson, 1991; Keith, et al, 1986; Nettles, et al., 1986/87; Nora & Cabrera, 1996; Tinto, 1997).

Institutional and environmental variables constitute the institutional and instructional environments in postsecondary institutions. These environmental factors included perceived students' institutional commitments, course scheduling, advisement, and counseling, academic ability and preparation, family responsibility and financial stressors, outside sources of financial support and familial encouragement, and aggregate students' commitment. These environments also create different risk sets for different students (Anderson, 1984; Brown & Kayser, 1982, 1985; Fox, 1986; Johnson, 1991; Kayser, 1984; Kohlberg, 1981; Knox, 1977; Morstain & Smart, 1974, 1977; Parelius, 1979; Pascarella, et al. 1996; Spady, 1970; Tinto, 1975, 1977, 1997).

Risk factors endemic within institutional and instructional environments tend to endanger students' progress in a course, a department, or a college. They also have the likelihood to result in voluntary and involuntary withdrawals predicated upon the students' ability to not only be socially integrated within these environments; but also be academically integrated and affiliated within the

institutional and instructional community (Tinto, 1997). The student is expected to embrace the institutional culture and be cognizant with the curricula offering and course scheduling (Pantages & Credon, 1978; Nora & Cabrera, 1996; Pascarella, 1982/85; Pascarella, et al., 1996; Terenzini, et al., 1996). This study found significant intercorrelations between students prior academic performance and their financial stressors ($\phi = 0.166$, $p < 0.01$), as well as between institutional commitment and faculty-student interaction ($\phi = 0.389$, $p < 0.001$). There was not a significant link between program difficulty and outside agency financial support. Program difficulty, however, had significant direct paths to students' intentional persistence ($\beta = 0.095$, $p < 0.05$) and institutional commitment ($\beta = 0.248$, $p < 0.001$) and, an insignificant indirect path to students' intentional persistence through institutional commitment ($\beta = 0.052$, $p > 0.05$). Outside agency support had insignificant direct links (and was also inversely related) to faculty-student interactions ($\beta = -0.048$, $p > 0.05$) and students' intentional persistence ($\beta = -0.007$, $p > 0.1$). The total effect of outside agency financial support, program difficulty, faculty-student interactions, and institutional commitment on students' intentional persistence were -0.049, 0.147, 0.185, and 0.248 respectively.

Institutional environments are characterized by their size (large, medium, and small), type (PWCU and PBCU), and program-type (two-year and four-year). These institutions attract diverse students and tend to offer different curricula for different students. Within the institutional environments, diversity do exist in instructional emphases. Some institutions are funded on a per-credit hour basis; others manage their operating budgets based on students' enrollment. Because of these differences, these institutions have different admission policies and governance. The consequences of these differences were the types of curricula offerings made available to the students. In addition, most institutions tend to recruit their faculty members based on merits and qualifications, others attract readily available instructors without terminal degrees as adjuncts or non-tenured professors. (Boylan, Bonham, & Bliss,

1993; Kulik, Kulik, & Schwalb, 1983; Roueche & Roueche, 1993). What happens in most cases is that the students seek to achieve and maintain congruence within the institutional environment and, the institution tends to admit the student who is most likely to persist and maintain homeostasis within the instructional environment. Surprisingly, this ideal mix is never the case. Students', upon being admitted into an institution, may transfer to another institution for reasons other than academic, personal, size and location of the institution, and/or institutional curricula (Bean & Metzner, 1985; Okun, et al., 1990). Observed institutional racism breeds nonchalance and, students' incompatibility with the institutional staff/faculty tantamount to lack of commitment. Extracurricular activities (intramural or varsity sports, band, etc.) are yet another reason for these high transfer rates. Family's wish that students transfer could also be reasoned as one of the factors that resulted in the high transfer rate. In all cases, in the final analysis, the quality of the relationships between a student and the institutional staff/faculty determines students' satisfaction with their parent institution. Positive faculty-student interactions facilitate academic and intellectual developments as well as social adjustment (Robinson, 1990; Smith, 1981; Smith, 1994; Stage, 1987, 1989).

Developmental educators and educational psychologists as well as sociologists are in agreement that peer-group interactions formed a significant bonding that shaped students' socio-academic integration and institutional affiliation and commitments (Fox, 1986; Jung, 1925; Jung, 1975; Nettles, Thoney, Gosman, & Dandridge, 1987). This study focused more on factors that shaped students' affiliation as dictated by Hill (1987), Johnson (1991), and Tinto (1975). Results from previous studies indicated that students who were more inclined to their personal satisfaction and committed to the institution as well as being able to form strong partnership with their peers and institutional staff/faculty had the highest propensity for retention, were less likely to transfer, attended the institutional orientation, scored at least 19 on their composite ACT, had at least 2.67 college GPA and 2.86 high school GPA.

were more likely to be involved in school and community related activities, had no dependent children, were mostly residential students with family size not more than four, received at least $3,500.00 worth of financial aid, observed occasional institutional racism, were young (mean age = 22.32 years), were mostly in four-year institutions, were aspiring for a college degree beyond the baccalaureate, and reported that their parental level of education was at least masters degree (Bean, 1981, 1985; Endo & Harpel, 1981; Iffert, 1957; Ikegulu, 1996; Nora & Cabrera, 1996; Terenzini, et al., 1996; Tinto, 1988, 1997).

Positive experiences and expectations within a peer-group is associated with high academic performance, institutional affiliation, and reduced retention. Social isolation mitigates feelings of alienation, which in turn reduces peer-group interactions and increases attrition rates. Therefore, institutional interventions that facilitate the formation of status affiliation and group membership toward the individual student, the group members, and the institution as a whole could very likely reduce attrition rates and improve institutional persistence.

The differential effects of the demographic factors indicated that students' marital status, gender, employment status, and minority status affected their intentional persistence. With regards to students' who were institutionally co-integrable, about 30.0% of the intentional persisters could be classified as students who were likely to co-integrate. The 70.0% of the sample had the highest propensity for malintegration. The majority of the co-integrated students were single young males. Malintegrated students clustered around older (and female) students and those students who had been married before. These results are consistent with the literature.

Studies have found significant differences between adult, non-traditional (age 28 and above) and traditional students in terms of their educational aspirations, level of motivation, and family stressors (Denniston & Imel, 1982; Kanchier & Unruh, 1988); and that the population of non-traditional learners have special needs (career mobility, occupational stressor, and family ties) that could hamper their

educational pursuits. Most adult learners experienced empty nest syndrome (i.e., traumatic events other than job dissatisfaction that include divorce, separation, death of parent or spouse, illness or birth of child (Anderson, 1984; Aslanina, 1989; Breese & O'Toole, 1994; Boshier, 1971, 1977; Denniston & Imel, 1982; Fisher, 1993; Henry & Basile, 1994; Kanchie & Unruh, 1988; Neugarten, 1968; Timmons, 1997).

Changing careers during adulthood has been recognized as a natural part of development for non-traditional students. This is common among female and adults whose skills have become obsolete and structurally unemployed individuals, adults experiencing a shift in values, and for homemakers and displaced workers (Chickering, et al., 1981; Cross, 1978, 1981; Henley, 1988). Reasons for these changes are either internal or external. Internal or psycho-social factors were related to changes in individuals or their families, level of income, and peer-group support. External factors were related to economic or technological changes in the environment and the workplace.

Studies have also indicated that: (1) The timing for most adult students to return to school was determined by the state of their relationships and life events and not solely by general motivation. Marriage and widowhood are the crucial life events for women. About 30.0% of vocational and non-traditional students reported a change in financial status as the reason for their decision to enroll in college. Events like divorce (11.0%), the exit of the last child from home was between (40.0% to 45.0%), work as career transition (70.0%) as educational barriers and major life events that could trigger the empty nest syndrome and postponement of education. (2) The decision to learn was often postponed until children were old enough, family responsibilities lessened, or until fellow workers or employers would not be inconvenienced. Concerns for family acted both as helping and impeding factors in the decision to postpone education. More White (89.0%) and married (53.0%) than African Americans (25.0%) and single or divorced (34.8%) are likely to continue their educational pursuit for career and occupational reasons (Anderson and Darkenwald, 1979; Aslanian & Brickell, 1980; Breese and O'Toole, 1994; Cross,

1979; Cross, 1981). (3) Learning is more common among adults who were young, White, well-educated, rich, resided in the suburbs, and worked longer hours.

Implications for Further Studies

While a growing body of research has contributed to our understanding of the interactive process of postsecondary student attrition and retention, several studies have stressed the need to modify persistence models to reflect varying student groups at different levels and types of institutions. Building upon Spady's (1970) schema, Tinto (1975) provided a framework which has influenced substantial amounts of current research in this field.

Research had supported the position that different levels of institutions, such as technical institutes, may require modification in the explanation of attrition-retention patterns. Johnson (1991) proposed a model, adapting the students' institutional persistence process for the postsecondary technical institution. As Pascarella, et al. (1983) concluded, efforts to modify existing interactive models to reflect varying student groups at different levels and types of institutions "is a fruitful path for future research" (p. 99). The use of theoretical models to explain the attrition-retention process has been suggested as the way to continue a systematic analysis of this problem and fruitfully contribute to the development of strategies to reduce the problem.

The results of the predictive model of vocational students' intentional persistence indicated that students' age and ethnicity were not significant factors in shaping their intentional persistence. However, gender and marital status could be considered in a predictive model of vocational students' persistence. Male and single students were more likely to persist than female and married students. Ethnic variables tended to influence retention in most persistence studies. This was not the case in this study. Minority status was not protective for students' intentional persistence. Family obligations were also considered in

this study. Family ties and perceived parental involvement were not significant in predicting students co-integrability and persistence. Parental level of education, family background and size, and number of dependent children were not included in this study. However, they were included in most retention studies; and could have affected students' integration and socialization within the institutional environments (Anderson and Darkenwald, 1979; Aslanian & Brickell, 1980; Breese and O'Toole, 1994; Keith, et al., 1986; Nora & Cabrera, 1996; Terenzini, et al., 1996; Tinto, 1997). Maybe these factors could have shed more light if they were used as moderators in this study. It seemed that more research is needed to conclude whether demographic factors are consistently interacting with students' withdrawal decisions. Sub-sampling by these demographic factors could result in a better understanding of institutional persistence in higher education. These sub-samples could be generated form within the available sample (geographical location) or the gender and marital/minority status of the participants. The estimated parameters of these sub-samples could be compared for internal consistency and reliability. Also, rival models could also be generated and compared for their parsimony and goodness-of-fit estimates with a baseline model (Benson, 1998).

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